

TROPICAL RAINFALL MEASURING MISSION

November 2, 1998 - November 8, 1998

DOY 306 - 312

Day of Mission 340 - 346

TRMM MISSION OPERATIONS

- TRMM is flying in the -X Forward direction as of 98-309, at 01:38z.
- The next Yaw maneuver is scheduled for December 5 (339).
- The next Delta-V maneuver is scheduled for November 11 (315) using the ISP thrusters.
- The Beta angle range for DOY 313 to 319 is -16.5° to -46.9° , decreasing.

TRMM SUBSYSTEM OPERATIONS

Attitude Control System

Delta-V maneuver #54 was successfully conducted on 98-308 at 17:43:03z and 18:28:51z, for durations of 45 and 21 seconds, respectively, using the LBS thrusters. The -Yaw thruster (#1) off-modulated for 8.06% during burn one (91.94% on time). The off-modulation of the +Pitch thruster (#2) was 22.5% and 17.26%, respectively (77.5% and 82.74% on time). The remaining fuel is 792.584 kg and the final apogee and perigee height is 354.73 km x 347.67 km.

Delta-V maneuver #55 was successfully conducted on 98-312 at 17:38:25z and 18:23:50z, for durations of 49 and 27 seconds, respectively, using the ISP thrusters. The -Pitch thruster (#6) off-modulation was 37.76% and 32.41%, respectively (62.24% and 67.59% on time). The remaining fuel is 790.820 kg and the final apogee and perigee height is 354.71 km x 347.37 km.

A +X to -X yaw maneuver was successfully performed on 98-309 at 01:38:09z.

The ESA has experienced Moon interference in quadrants 2 and 4 on 98-306, 98-311, and 98-312 and has transitioned nominally between 3 and 4 head control. Overlapping Sun and Moon interference is predicted to occur again on November 17.

Command Request #77 was performed on 98-308 to select System table #59 for a checksum validation and the reset operations. On 98-309 the table was dumped per Command Request #79.

No attitude change is planned for the Leonid storm activities, although it has been coordinated with FDF as a precaution that no maneuver will be performed on the day of peak activity (98-321).

Flight Data System (FDS)/Command & Data Handling (C&DH)

The Frequency Standard continues to drift in the negative direction. The frequency was adjusted 9 counts on 98-306, at 23:16:59z, and is now x741. The current drift rate is -0.43 μ s/hr. The UTCF was adjusted -838 μ s on 98-306, at 23:18:54z, and is now 31535997.875125 sec. The current drift value is -53.5 μ s.

Q-Channel Restarts occurred on 98-308 at 04:31:39z, 09:25:58z, and 23:34:59z, 98-309 at 12:34:23z, 98-310 at 23:16:58z, 98-311 at 18:25:46z, and on 98-311 at 04:31:58z, 04:32:09z, and 07:53:03z.

An EDAC Multi-bit error was received on 98-311 at 08:08:46z.

Reaction Control Subsystem (RCS)

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

Power Subsystem

The Power subsystem operated nominally during this period.

Electrical Subsystem

The Electrical subsystem operated nominally during this period.

Thermal Subsystem

The Thermal subsystem operated nominally during this period.

Deployables Subsystem

The Deployables subsystem performed nominally during this period.

RF/Communications Subsystem

The RF/Communications subsystem has performed nominally during this time.

A Command Request (#76) was performed for a 1/4 kbps event on 98-308 to offset the center frequency of Transponder 2 by 850 Hz. This was done to examine if synchronizing the frequency more accurately with the uplink eliminates the poor-quality links we have been experiencing (Anomaly #54): therefore making it necessary to place the offset in the AOS/LOS sequences. The event did occur with no dropouts and further testing will be done in the coming week.

The 1/4 kbps event scheduled on 98-310 was lost due to a scheduling misconfiguration (Event Report #68). The event was moved from TDS to TDE due to shuttle requirements, but was not respecified by the NCC for the 1/4 kbps rate (from the default 1/1 kbps for the configuration codes used). The spacecraft data was recovered but transponder frequency trending was lost.

SPACECRAFT INSTRUMENTS

CERES

CERES is currently powered off and CERES personnel are developing a plan for operating the instrument with the +15 V DAA anomaly.

CERES will remain in the current configuration for the Leonid storm since it was determined that the azimuth is in a safe position.

LIS

LIS performed nominally during this time period. LIS will remain powered on and collecting science during the Leonid storm time period.

PR

PR performed nominally during this time period.

As of November 2nd (98-306), PR is no longer being placed in Internal Calibration mode over Australia, except upon the NCC request from the tracking station, and is now performing an Internal Calibration once every Wednesday at the first -35° latitude approach. The first occurrence was on 98-308, at 00:31z.

The PR instrument will be powered off for a six hour duration during the 98-321/15:46 event, as a precaution to possible ESD or plasma discharge occurrences resulting from the Leonid storm.

TMI

TMI performed nominally during this time period. TMI will remain powered on and collecting science during the Leonid storm time period.

VIRS

VIRS performed nominally during this time period.

The ISW heaters were toggled from the 15W to the 8.5W on 98-309.

Solar Calibrations were successfully conducted on 98-310, at 09:33:20z and 11:04:46z.

VIRS Warning messages #30 (2), 20 (1), and 78 (2) occurred during this period.

Outgas operations will be performed during the peak Leonid meteor storm time period on 98-321 which will serve to protect the Earth Shield door while simultaneously reducing the Cold Stage temperature to the most desirable levels. Outgas operations of this nature typically last for 24 hours.

GROUND SYSTEM

String 1 is now in the end-to-end and Y2K testing stage and upon acceptance, will be returned to Primary Operational string status on or near November 30. String 2 is still currently being used as the primary real-time string and string 3 is used as the hot back-up. Real-time events are being monitored on string 1 in parallel with string 2 events, and the dynamic simulator has also been utilized on string 1 as full regression testing of the new software continues. Y2K compliant GTAS is now in the SOTA Bay, and is also being fully tested prior to installation on string 2, which will only occur once string one is officially primary again.

The MOC successfully transitioned GN/DSN to the IP system on November 2nd (98-306).

On 98-310, the new database version 10.1 was copied to string 2 and made operational.

On 98-309 the Reed Solomon card for Channel 1 of front end processor 1 failed and was replaced.

The disks of the b and c processors of front end processor 2 began failing towards the end of the week and will be replaced Monday morning.

EVENT REPORTS

#68: Config. Codes for 1/4 K: see RF/Comm. section.

Generic Late Acquisition Reports (for TTRs 19639)

No generic late acquisitions have occurred during this period.

NEW ANOMALIES

No new Anomaly Reports were written during this week.

RECURRING OPEN ANOMALIES

No open anomalies have recurred during this period.

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